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LIST OF BIRDS COLLECTED OR OBSERVED DURING THE BAHAMA EXPEDITION OF THE GEOGRAPHIC SOCIETY OF BALTIMORE.

BY J. H. RILEY.

DURING June and July, 1903, the author accompanied the Geographic Society of Baltimore's expedition to the Bahama Islands for the purpose of collecting reptiles, birds, and mammals for the U. S. National Museum. We sailed from Baltimore in the ninety-two ton schooner 'Van Name,' June 1, and arrived at Nassau, after a very stormy voyage, June 17, where we collected until June 24. Leaving Nassau, June 25, we arrived off Morgan's Bluff, Andros, the same evening and proceeded down the coast to Mangrove Cay where we arrived late the next morning. Here five of the party, including the author, the next day started in a small sponger to Grassy Creek. Arriving at the Creek early in the evening of June 28, we proceeded inland by boat and camped for the night on a small strip of dry ground. Part of the next day was spent in hunting Flamingoes, when we were obliged to leave to rejoin the ship at Green Cay which we did not succeed in doing until late in the evening of the following day, and then only to learn that it was necessary to put back to Nassau, to replenish our water supply. July 2, was spent at Nassau, when we sailed for Eleuthera, arriving off Spanish Wells late in the evening of the same day. On Eleuthera a short time was spent in collecting, varying from a few hours to a whole day, at The Bluff, Gregorytown, Governor's Harbor, and Powell's Point. About three hours of July 9, was spent on Cat Island and about the same time on Rum Cay the next day. July 11 to 13, was spent on Watlings Island and from July 14 to 17, on Long Island, at Clarence Harbor. We reached Nassau again on July 20, where we spent part of the day collecting. On July 22, we spent about four hours on Abaco, opposite Hopetown, which was the last collecting done, as we attempted to sail the next day for Baltimore, but as the wind failed after leaving the harbor we did not get started until the day after.

For a fuller account of the expedition, the geology, physical fea-

tures of the islands, etc., the reader is referred to the Society's Report¹ of which these notes were originally intended to form a part of the report on birds.

Owing to lack of time and the poor facilities for work our collections were not as large as we could have wished, and my only excuse for presenting such a meager list is that it is from a region of exceptional interest and which yet holds many unsolved problems for future investigation.

My thanks are due to Dr. George B. Shattuck, Captain Charles Flower, Mate Davis, many members of the expedition, and especially to Mr. S. H. Derickson, who was also collecting birds, for many favors rendered me during the trip.

1. *Colymbus dominicus* Linn. ST. DOMINGO GREBE.—Two were seen on a small lake on Rum Cay; one on a small pond on Watlings Island; and several on the salt pans around Clarence Harbor, Long Island.

2. *Puffinus lherminieri* Lesson? ANTILLEAN SHEARWATER.—Several shearwaters, presumably of this species, were seen just before entering Nassau harbor.

3. *Oceanites oceanicus* (Kuhl)? WILSON'S PETREL.—Small black petrels followed the vessel in some numbers from the time we passed out of Chesapeake Bay until after we sighted the Nassau light and on the return voyage, but in smaller numbers, soon after we left Abaco until we sighted the Capes. We watched these birds with considerable interest and observed that the feet were carried close together and straight out behind in flight, giving the impression of a longer central tail feather. The wings appeared to have a V-shaped piece taken out of them, where the long primaries meet the secondaries, I presume. In hovering to examine anything or to check their flight they drop the feet into the water and appear to be walking on the waves, but this is only for a brief period, as a rule, when they resume their course. Occasionally they were seen to settle on the water but for a short time only.

4. *Phaëthon americanus* Grant. AMERICAN TROPIC BIRD.—Several tropic birds met the vessel the day before we reached Nassau and quite a number came around the vessel after leaving Abaco. They were very bold and one seemed inclined to alight on the rigging.

5. *Phalacrocorax vigua mexicanus* (Brant). MEXICAN CORMORANT.—A colony of these cormorants was breeding in some tall mangroves in the large salt water lake on Watlings Island. Most of the young were found

¹ The Bahama Islands. Published by the Geographical Society of Baltimore. 1905. George Burbank Shattuck, Ph. D., Editor. Birds, pp. 347-368. [Cf. Auk, XXII, July, 1905, p. 328.]

sitting on the edge of the nests, that were from fifteen to twenty feet up, or on the limbs out of the nest. Some of the young were already in the water with their parents, though they could not fly apparently. A few nests contained heavily incubated eggs. This was on July 11. A few cormorants were seen on the salt pans around Clarence Harbor, Long Island, but as none were shot here their identity is in doubt, though they appeared to belong to the same form as those shot on Watlings. The young are eaten by the inhabitants and are said to be very good. The numerous downy skins found along the shores of the salt lakes on Watlings, would indicate that young cormorant is quite an item in the domestic economy of the islanders.

6. *Fregata aquila* (Linn.). MAN-O'-WAR BIRD.—Man-o'-War Birds were seen in greater or less numbers at New Providence, Eleuthera, Cat Island, Rum Cay, Watlings Island, and Abaco. We were much interested in watching a Laughing Gull, early one morning, making repeated swoops at some object floating in the water, when one of these birds came silently up and carried off the booty without an effort, much to the discomfiture of the gull. In flying or sailing, which seems to be done without an effort, the tail is carried closed as a rule.

7. *Phœnicopterus ruber* Linn. AMERICAN FLAMINGO.—Not uncommon and breeding on Grassy Creek, Andros. Though we did not reach the nesting grounds, on account of the very short time allotted us to make the trip, we saw the birds in the distance in a long red line and were told that they were nesting there. One that was feeding in a shallow part of the swash, and on which we succeeded in stealing up to within a hundred yards, would put its head under water and then move the feet backward as if it was scratching up the mud to obtain food. In flight the head and feet are held in nearly a straight line with the body and the bird presents a very striking figure, like a pair of black-tipped wings, that appear inadequate for support, fitted to a long red line with a knot at the end where the head is situated. In all we saw a number of detached flocks and single birds, besides the main body in the distance, during the day we spent here, but the birds are very wary from continued persecution by the inhabitants and visiting sportsmen from Nassau. The country they inhabit is very difficult to hunt over, being mostly under water with small keys and mud flats here and there, and is locally called swash. We were told that late in the summer they moult all the flight feathers at once and are then pursued and captured by the inhabitants. A small colony, we were informed, breeds on the lake near Clarence Harbor, Long Island, but we did not have an opportunity of verifying this report.

8. *Herodias egretta* (Gm.). AMERICAN EGRET.—Several were shot on Grassy Creek, Andros. They were also seen on Eleuthera, Watlings Island, and Long Island, generally singly.

9. *Hydranassa tricolor ruficollis* (Gosse). LOUISIANA HERON.—Very common and breeding on Watlings Island, July 12. All the young seen were nearly, if not quite, able to fly.

10. *Butorides virescens bahamensis* (*Brewster*). BAHAMA HERON.—This light colored, well-marked form of the Green Heron was found in small numbers on New Providence, Andros, Eleuthera, Rum Cay, Watlings Island, and Long Island.

11. *Nyctanassa violacea* (*Linn.*). YELLOW-CROWNED NIGHT HERON.—This was a very common heron on Grassy Creek, Andros. A nest constructed loosely of sticks was built about eighteen inches above the ground in a bush on Grassy Creek. It was about two feet in diameter and contained two young nearly ready to fly and another young was found on the ground that had evidently left the nest, June 29. Some birds shot from a cliff on Eleuthera had the bills coated apparently with carrion. It was also seen on Watlings and Long Islands.

12. *Pœcilonetta bahamensis* (*Linn.*). BAHAMA DUCK.—Three ducks, apparently of this species, were seen on Grassy Creek, Andros. One was shot and several others seen on Long Island, July 17. The specimen shot was a female and refused to fly, indicating that she had a nest in the near vicinity, but though we searched for a long while, our efforts were futile. Upper mandible bluish slate, with an ochraceous yellow blotch on each side near the base, in life.

13. *Colinus virginianus bahamensis* (*Maynard*). BAHAMA BOB-WHITE.—Though often heard and seen on two or three occasions crossing the roads on New Providence, we did not succeed in securing any specimens. We found it impossible to make them rise in the thick brush. They are said to have been introduced by one of the early plantation owners, which would seem to invalidate the claims of *bahamensis* to recognition.

14. *Rallus crepitans coryi* (*Maynard*). BAHAMA CLAPPER RAIL.—One was shot by Mr. Derickson on New Providence, June 24. A Clapper Rail was heard on Grassy Creek, Andros, and another on Eleuthera. These rails keep to the mangroves and it is impossible to flush them. The one taken was only shot after an hour or two's work by both of us, and then only after we had kept still for a time. They skulk under the roots and only those who have been in a mangrove swamp can appreciate the difficulty of trying to make them rise; occasional glimpses can sometimes be obtained as they glide from clump to clump. They are noisy and make their presence known, however.

The specimen taken, when compared with the forms of Clapper Rail inhabiting the West Indies, is much lighter in color, but from true *crepitans* of the northeastern United States it is hardly different, being only slightly lighter in color with an apparently shorter and slenderer bill.

15. *Larus atricilla* *Linn.* LAUGHING GULL.—Laughing Gulls were seen in small numbers at New Providence, Andros, Eleuthera, Rum Cay, Watlings, and Long Islands.

16. *Gelochelidon nilotica* (*Linn.*). GULL-BILLED TERN.—Two or three were seen hawking over a clearing on Eleuthera; about a dozen were found frequenting a small inland lake on Rum Cay; and they were not uncommon around the old salt pans on Long Island.

17. *Sterna maxima* (Boddaert) ROYAL TERN.—A fine specimen was shot by Dr. Penrose and a few others were seen on Andros; a few were seen around Eleuthera and Long Island.

18. *Sterna sandvicensis aculeiflava* (Cabot)? CABOT'S TERN.—A large tern with an apparently yellow-tipped bill was seen sitting on a buoy as we entered Nassau, June 17; I take it to be of this form.

19. *Sterna antillarum* (Lesson). LEAST TERN.—This species was breeding in some numbers on Little Mangrove Cay, Andros; they were also seen in small numbers around Eleuthera, Rum Cay, Watlings Island, and Abaco.

20. *Sterna anæthetus Scopoli*. BRIDLED TERN.—A few were shot at Mangrove Cay, Andros; they were apparently breeding in immense numbers on a small key just back of Governor's Harbor, Eleuthera, July 7, where we shot a number. A few were seen opposite Elbow Cay, Abaco.

21. *Anous stolidus* (Linn.). NODDY.—One was seen between Andros and Green Cay, June 30.

22. *Himantopus mexicanus* (Müller). BLACK-NECKED STILT.—One was seen on Grassy Creek, Andros; they were not uncommon on Eleuthera, Rum Cay, Watlings, and Long Islands. They are very noisy, circling around the invader of their haunts and keeping up a continuous racket. On this account they are known as *tell tales*. Almost every small pond or inland mud flat seemed to have a few pairs wading around with stately tread until the intruder was sighted when their infernal racket began.

23. *Actodromas minutilla* (Vieillot). LEAST SANDPIPER.—A flock of seven was found on Long Island, July 16, and several taken.

24. *Catoptrophorus semipalmatus* (Gm.). WILLET.—Very common on Grassy Creek, Andros, where a young specimen was taken by Mr. Derickson on which the feathers were just beginning to appear, June 29. A set of four heavily incubated eggs was taken by Mr. Mooney at Mangrove Cay, Andros, June 27. A few pairs were found around a small pond on Rum Cay, and several were seen in a similar situation on Long Island.

Our specimens appear to be smaller than *semipalmatus* from the eastern United States with shorter and slenderer bills.

25. *Oxyechus vociferus* (Linn.). KILLDEER.—A single specimen was flushed, but not secured, on Cat Island, July 9.

26. *Ægialitis semipalmata* (Bonap.). SEMIPALMATED PLOVER.—A single specimen was shot by Mr. Derickson on Long Island, July 17.

27. *Ægialitis nivosa* Cassin. SNOWY PLOVER.—A single specimen in worn plumage was shot and another seen by Mr. Derickson on Long Island, July 16, as reported in 'The Auk,' XX, 1903, 433.

28. *Ochthodromus wilsonius* (Ord). WILSON'S PLOVER.—Not uncommon on Andros; a pair were evidently nesting on Rum Cay, July 10; not uncommon on Long Island.

All the birds taken seem to be paler and smaller than specimens from the eastern United States, but are nearer *wilsonius* than *rufinuchus* of the West Indies.

29. *Hæmatopus palliatus Temminck*. AMERICAN OYSTER-CATCHER. — Two were seen standing on the rocks and one was taken on Long Island, July 17. Mr. Derickson saw three or four additional specimens near the same place but was unable to secure any.

The characters assigned to *prattii* do not appear to be constant and hardly seem to warrant separation. I say this after comparing three specimens from the Bahamas with a series of *palliatus* from various localities. Bill and ring around eye bright orange; irides gamboge, shot with brown.

30. *Columba leucocephala Linn.* WHITE-CROWNED PIGEON. — A female taken on New Providence, where they were not common, June 23, had an egg in the oviduct ready to be deposited. Thousands were seen flying, late in the evening, from Andros towards Green Cay, where there was a large breeding colony. Small flocks and single birds were seen on Eleuthera, Cat Island, Watlings, and Long Island. A nest was found on Abaco, July 22, about fifty feet up in a pine. It contained young, I judged, from the actions of the parents. Irides buff.

31. *Zenaidura macroura (Linn.)*. MOURNING DOVE. — A male, apparently not different from birds from the eastern United States, was shot on Long Island, July 16.

32. *Zenaida zenaida (Bonap.)*. ZENaida DOVE. — This dove was seen on New Providence, Eleuthera, Cat Island, Watlings, and Long Island. They were generally seen singly, flying back and forth, and on no island in any numbers. Dr. Coker showed me a nest, containing two young with the feathers just sprouting, on Long Island, July 17. The nest was quite an elaborate affair for a dove, composed of small twigs and placed in a small cavern of the rough coral rock of the beach.

33. *Columbigallina passerina bahamensis (Maynard)*. — BAHAMA GROUND DOVE. — This well-marked form of Ground Dove was abundant in clearings or along the roads on New Providence, Eleuthera, Cat Island, Watlings, and Long Island, but not very common on Abaco where we landed. Bill (in life) black, except at base of lower mandible where it is reddish.

34. *Cathartes aura (Linn.)*. TURKEY VULTURE. — Quite a number were seen on Andros, where they appear to be not uncommon.

35. *Pandion haliaëtus ridgwayi (Maynard)*. BAHAMA OSPREY. — Several of this doubtful form of osprey were seen on Long Island and one was shot by Mr. Derickson, but not recovered.

36. *Speotyto cunicularia cavicola Bangs*. NASSAU BURROWING OWL. — A male shot on New Providence, June 19, was sent to me in the flesh by Mr. C. Hamilton Burnside.

This specimen when compared with *S. c. floridana* is apparently of a more reddish cast with larger and whiter spotting, and the spots on the

outer primary are less pronounced and do not reach the shaft of the feather by a considerable distance, producing an entirely different pattern. It is lighter in color than *S. c. dominicensis* and the pattern of the outer primary is different. I have not seen a specimen of *S. c. bahamensis* from Great Inagua.

37. *Crotophaga ani* Linn. ANI.—These noisy birds were common on New Providence, but rather rare on Eleuthera, Watlings, and Long Island.

38. *Coccyzus minor maynardi* (Ridgway). MAYNARD'S CUCKOO.—One was shot and another seen on New Providence; a single specimen was taken on Long Island.

39. *Saurothera bahamensis* Bryant. BAHAMA LIZARD CUCKOO.—A specimen was seen after a heavy tropical rain sitting in a dejected attitude with drooping wings, drying its plumage, and shot. A male, shot in worn plumage, July 20, is without the black subterminal bar on the tail, though apparently adult; this would seem to indicate that the fully adult plumage is not acquired until after a complete fall moult or until the second year. Though apparently not uncommon on New Providence (it was only observed there) it is more often heard than seen, as it keeps to the thick scrub. While its notes did not sound so loud or so varied as those of *S. merlini* of Cuba they have a general unmistakable resemblance. Bare skin around the eye vermillion; irides brown.

40. *Dryobates villosus maynardi* Ridgway. MAYNARD'S WOODPECKER.—Two females and one male of this small race of the Hairy Woodpecker were taken on New Providence, and about as many more were heard.

41. *Centurus superciliaris nyeanus* (Ridgway). NYE'S WOODPECKER.—For an account of the taking of a specimen of this woodpecker see 'The Auk,' XX, 1903, 434.

This now appears to be a well-marked race of *Centurus superciliaris* of Cuba, from which it differs in the following points: (1) smaller size; (2) smaller black superciliary patch; (3) lighter color, both above and below, with hardly any of the olive tinge so conspicuous in *superciliaris*; and (4) in having less red on the belly. Its nearest relative is probably *Centurus superciliaris blakei* of Abaco, from which it differs: (1) in being lighter in color; and (2) in not having so much olive below.

42. *Chordeiles virginianus vicinus* Riley. BAHAMA NIGHTHAWK.—I have nothing to add to my account of this bird already given in 'The Auk,' XX, 1903, 431.

43. *Doricha evelynæ* (Bourcier). BAHAMA WOOD-STAR.—This hummer was especially common on New Providence, where the females and immature males seemed to outnumber the adult males about ten to one. They were also seen on Andros, Eleuthera, Cat Island, Rum Cay and Long Island, but on none in such numbers as at Nassau. They did not appear to be as active as *Trochilus colubris*, and most of those seen feeding were hovering around spider webs. The greater part of their time seemed to be spent in resting, perched quietly in a conspicuous place.

44. *Riccordia riccordii æneoviridis* (Palmer & Riley). BAHAMA EMERALD HUMMINGBIRD. — The only hummer seen by us on Abaco, where it did not appear to be uncommon was of this race. It is much more active than the preceding species but I could detect no difference in habits from true *riccordii*.

Mr. Bonhote, in 'The Ibis,' July, 1903, 293, says that he sees no good reason for separation, but admits that the present form differs from *riccordii* in (1) the middle feather of Abaco birds being slightly broader, and (2) the tail of a more coppery bronze. I have examined our series of *riccordii* and *æneoviridis* again and find that the tail of Abaco birds is less deeply forked and that the middle tail feather is broader. Abaco birds average a more coppery green both above and below and I think the differences between the two birds are sufficient to keep them apart as geographical races at least.

45. *Tyrannus dominicensis* (Gm.). GRAY KINGBIRD. — Very common on New Providence, Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, Long Island, and Abaco. Does not appear to be as noisy as *Tyrannus tyrannus*, but it was by far the noisiest bird met with, with the exception of the Black-necked Stilt and the Willet. A nest, with three heavily incubated eggs, was placed in a small mangrove about five feet above the water on a small bay near The Bluff, Eleuthera, July 4. Another nest was found in a slender dead tree on Long Island, July 14. It was about fourteen feet above the ground and out on a slender branch. We could not reach the nest but could see that it contained eggs. One of the parents of this nest was very bold, darting down almost into my face while I was trying unsuccessfully to reach the eggs. A nest was seen on Abaco, July 22, about fifty feet up in a pine, that, judging from the actions of the parents, must have contained young on this date.

A male shot on Eleuthera, July 6, has the bill, almost if not quite, equal to some specimens of *T. d. rostratus*, but it is slightly more attenuate at the end.

46. *Pitangus bahamensis* Bryant. BAHAMA PITANGUS. — Found only amongst the pines on New Providence, where they were by no means common. They did not seem to be as noisy as *Pitangus caudifasciatus* of Cuba, and the white at the base of the tail is not nearly so conspicuous in flight.

47. *Blacus bahamensis* (Bryant). BAHAMA PEWEE. — An immature male was shot on New Providence, June 19, amongst the pines. One was noticed on the border of the pines on Abaco, July 22, but not secured. No others seen.

48. *Mimus gundlachi Cabanis* GUNDLACH'S MOCKINGBIRD.

49. *Mimus gundlachi bahamensis* (Bryant). BRYANT'S MOCKINGBIRD. — Very common on Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, and Long Island. Not as good a songster as *polyglottos* nor are the notes so varied. Numerous unoccupied nests were seen on Eleuthera in the orange trees about four feet up. Mr. Derickson found a nest on

Eleuthera, July 6, and caught the parent alive with his hand on the nest. The nest contained three heavily incubated eggs with a creamy white ground, covered rather evenly with small spots and streaks of two shades of vinaceous. They measure 28.3 by 20.4, 28.5 by 20, and 28.5 by 20.4 mm. respectively.

Gundlach says (Orn. Cubana, 1895, 53) that the type of Cabanis's *M. gundlachi* came from the Cayo Santa Maria, off the northern coast of Cuba, where it was probably a straggler, as Gundlach apparently did not meet with it again in a wild state. Mr. Ridgway has discriminated two forms, a northern and a southern. Bryant's name applies to the northern form.

50. *Margarops fuscatus* (Vieillot). PEARLY-EYED THRUSH.—Not uncommon on Rum Cay and Watlings Island, but much rarer on Long Island. These birds keep to the thick brush and are rarely seen in the open, but they have a beautiful song, much superior to that of *Mimus gundlachi*, which makes their presence known. They appear to be very shy and dart to cover at the least alarm if they happen to be away from it. One was seen in hot pursuit of a Gray Kingbird on Rum Cay that seemed only too glad to escape by flight. Irides yellowish-white.

51. *Mimocichla plumbea* (Linn.). BAHAMA RED-LEGGED THRUSH.—Found sparingly on New Providence, Eleuthera, and Cat Island. Keeps to the thicker cover and is rarely seen. Sings perched in the top of the taller trees, and while the song is not bad, it is far inferior to that of *Margurops*. A nest, composed of palmetto strips and rootlets, was found, July 7, on Eleuthera, about seven feet from the ground in the crown of a paw-paw tree. It contained three young just from the egg. The local name for this thrush is "Blue Thrasher" and on Cat Island "Blue Jay." Tarsi and ring of skin directly around the eye, coral red.

52. *Poliophtila cærulea cæsiogaster* Ridgway. BAHAMA GNATCAT-CHER.—A male was 'squeaked up' and shot on New Providence, June 19, in the pines. After shooting the male three young barely able to fly were discovered, and though I waited around for some time and returned to the same place next day, nothing was seen of the female.

53. *Vireosylva calidris barbatulus* (Cabanis). BLACK-WHISKERED VIREO.—Common on New Providence, Eleuthera, and Long Island. Has a monotonous song resembling that of *V. olivaceus* but is probably on the whole better.

54. *Vireo crassirostris* (Bryant). BAHAMA VIREO.

55. *Vireo crassirostris flavescens* Ridgway. YELLOW BAHAMA VIREO.—Vireos of either one or the other of these forms were rather common in the thick brush on all the islands visited. In habits and song they resemble *Vireo noveboracensis*, but the notes are more varied and of endless variety. One of the commonest notes heard sounds something like *chip-cheree*. The irides are brown. Our specimens are either *crassirostris*, *flavescens*, or intermediates, and seem to throw no light on the status of the two forms, as the following list of specimens will show:

Vireo crassirostris.—New Providence, 10; Abaco, 2. *Intermediates*.—New Providence, 3; Eleuthera, 2; Cat Island, 1; Rum Cay, 1; Long Island, 4. *Vireo c. flavescens*.—Eleuthera, 5; Long Island, 2.

56. *Callichelidon cyaneoviridis* (Bryant). BAHAMA SWALLOW.—We found these birds only along the road west of Nassau, New Providence. On cloudy days they would come out in force and hawk about the cliffs and open fields; when it was clear we could hardly find a bird. They are very graceful in flight and the forked tail of the adult is then very conspicuous, reminding one at a distance of the Barn Swallow. The tail of the immature is not very prominently forked and the iridescent color of the adult is lacking; in this plumage resembling young of *Iridoprocne bicolor*. On July 2, we saw twelve of these swallows sitting in a row on the eaves of the Colonial Hotel, the only time we saw any of them perched.

57. *Dendroica petechia flaviceps* Chapman. BAHAMA YELLOW WARBLER.—Common in the mangroves near the beach on Rum Cay; a few were found along the shore on Watlings Island. Like *D. p. gundlachi* in Cuba, this bird does not appear to be found far away from mangrove swamps.

58. *Dendroica dominica* (Linn.). YELLOW-THROATED WARBLER.—Two taken in the pines on Abaco, July 22, would seem to indicate that this species is resident.

59. *Dendroica pityophila bahamensis* Cory. BAHAMA WARBLER.—A young specimen was shot by Mr. Derickson in the pines on Abaco, July 22. As the young plumage has never been described, a description is given.

Above hair brown; breast and flanks lighter hair brown; throat, center of belly, and under tail-coverts whitish; tail blackish, the inner web of the outer feather with an oblique white spot, this spot barely indicated on the next; feathers of the wing blackish, slightly edged with hair brown; the greater and lesser coverts slightly tipped with drab.

60. *Dendroica vigorsii achrustera* (Bangs). NASSAU PINE WARBLER.—Not uncommon in the pines on New Providence.

61. *Dendroica vigorsii abacoensis* Ridgway. ABACO PINE WARBLER.—One taken in the pines on Abaco, July 22.

62. *Dendroica discolor* (Vieillot). PRAIRIE WARBLER.—One specimen in immature fall plumage taken on New Providence, July 20, was probably bred on the island.

63. *Geothlypis maynardi* Bangs. MAYNARD'S YELLOW-THROAT.—A male taken on New Providence, June 18, has the back and top of head much more yellowish olive-green than any specimen of *maynardi* available for comparison, but is nearer this species than *flavida*. It is also of a brighter yellow below with an apparently heavier bill than specimens of *maynardi* in the collection.

Yellow-throats are apparently rare on New Providence and only three or four were heard during our stay of a little over a week.

64. *Geothlypis tanneri* Ridgway. TANNER'S YELLOW-THROAT.—A male was taken amongst the pines on Abaco, July 22.

65. *Geothlypis incompta* Ridgway. LESSER ABACO YELLOW-THROAT. — A male taken on Abaco, July 22, in worn plumage, while paler both above and below than any specimen of *incompta* available for comparison comes nearer to this than it does to *tanneri*.

During the four hours we spent on Abaco, we took two male yellow-throats and saw a female we did not succeed in shooting. This would indicate that they are not uncommon on the island. Both this and the above species were taken in the same character of country; namely heavy pine forest with *Pteris* fern brake beneath. The specimen of *tanneri* taken was singing a song somewhat resembling the well-known notes of *G. trichas* but probably with more force. It was easily 'squeaked up,' coming almost too close to shoot even with a light load in an insertion barrel, but backing off is out of the question in a rocky fern brake full of holes and crevices.

66. *Cœreba bahamensis* (Reich.). BAHAMA BANANAQUIT. — Abundant on New Providence, Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, Long Island, and Abaco. One of the first birds to respond to squeaking. They seemed to be very industrious in searching the trees, presumably for insects, crawling up and down like *Mniotilta varia*; indeed, their actions are very warbler-like. Their song is a weak little warbler-like trill. Several dome-shaped nests that we took to belong to this species were found but none contained eggs. Young in all stages of plumage were seen, indicating that the nesting season for them was apparently over. The skin at the angle of the commissure is coral pink in life.

67. *Agelaius phœniceus bryanti* Ridgway. BAHAMA REDWING. — A few pairs were found around Lake Kilarney and a small mangrove swamp on the western end of New Providence. Two nests, like the nests of the common Redwing, were found in the latter situation, June 24. The nests were in small mangrove bushes, about four feet from the ground, and contained three young and three eggs respectively. The eggs do not differ materially from eggs of *A. phœniceus* and measure 23 by 17.5, 23.2 by 17.7, and 22.2 by 17 mm. A few pairs were seen on Grassy Creek, Andros, and a few pairs around a small mangrove swamp on Abaco.

Our New Providence specimens seem to be slightly darker than our Abaco (the type locality of *bryanti*) birds, but our series from either island is too small to be of any importance.

68. *Spindalis zena* (Linn.). BLACK-BACKED SPINDALIS. Very common on New Providence and Long Island. They could often be seen on New Providence floating over the low scrubby growth and singing on the wing, though their song is generally delivered whilst perched, and I suppose the aerial evolution is only resorted to when their nuptial passions can no longer be restrained. The song is a weak little trill and does not take high rank as a musical performance. I came upon four or five of these birds one day feeding greedily upon the ripe fruit of the sapodilla.

69. *Spindalis zena townsendi* Ridgway. ABACO SPINDALIS.—This well-marked race was common amongst the pines on Abaco, and though we shot a number, only succeeded in recovering two that would do for specimens.

70. *Pyrrhulagra violacea* (Linn.). BAHAMA BULLFINCH.—Very common on New Providence, but seen in far less numbers on Eleuthera, Cat Island, and Long Island. Keeps to the thick scrub and is rarely seen, but is one of the first birds to respond to squeaking.

71. *Tiaris bicolor* (Linn.). BAHAMA GRASSQUIT.—Abundant on New Providence, Eleuthera, Cat Island, Watlings Island, Long Island, and Abaco. It has a sweet little weak song that somewhat reminded me of the Field Sparrow's. This song is generally delivered from a low bush but occasionally from the tops of the taller trees. It frequents the scrubby growth, keeping near the ground, as a rule.



ARE THE HABITS OF BIRDS CHANGING?

BY GEO. F. BRENINGER.

CHANGES in the habits of birds are largely due to conditions; conditions change with the progress of time. A century ago there were many large areas of timbered lands; these are being gradually cut away, until to-day there are but few large timbered tracts within the boundaries of the United States, and these principally in the West. With the felling of the trees and the clearing away of the smaller growths, follows the plowman; seed is sown, and changes take place, which attract some species and drive others away. The nesting habits in many species change.

During the past twenty-five years I have seen changes in nesting sites in many species, notably with Lucy's Warbler (*Helminthophila luciae*). Normally this warbler nests in natural cavities in the trunks of trees. My observations lead me to believe the mesquite to be the kind of tree selected, though in a measure this is again due to conditions. In the land where Lucy's Warbler lives mesquite is the principal tree. Cottonwood is also